Psychiatric Quarterly, Vol. 75, No. 2, Summer 2004 (© 2004)

CONTINUITY AND INTENSITY OF CARE AMONG WOMEN RECEIVING OUTPATIENT CARE FOR PTSD

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Continuity of care (COC) is often used as an indicator of treatment quality for patients with severe psychiatric or addictive disorders. However, few studies have examined the relationship between measures of COC and treatment outcomes. This study used standard regression models to examine the strength of the association between continuity of care measures and health outcomes for a sample of female veterans newly entering outpatient treatment for PTSD. There were few consistently significant associations between COC and outcome measures. Four months following program entry only one measure of treatment process, commitment to treatment, was positively associated with one or more continuity of care measures and several COC measures were associated with poor outcomes. Eight months following program entry patients with greater COC during the first four months of treatment had greater declines in violent behavior and PTSD measurements and larger increases in global functioning.

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0033-2720/04/0600-0165/0

However, when a Bonferonni corrected alpha of $P < .001$ was used to adjust for multiple comparisons, none of the relationships remained statistically significant. Thus, this study provides only weak and inconsistent evidence of the clinical benefits of continuity of care.

KEY WORDS: mental health; service delivery; continuity of care; outcomes; women.

Continuity of care is widely viewed as an important feature of treatment for individuals with serious mental illness (1–4) and is becoming one of the primary ways in which the quality of outpatient care is assessed (5–7). However, there has been relatively little empirical evaluation of the relationship of measures of continuity of care to treatment outcomes. Two recent papers have examined the relationship of continuity to mental health outcomes and reported no consistent relationships (8,9). However, these studies involving patients discharged from inpatient or residential treatment programs were unable to use data at discharge from these programs or at entry to outpatient programs. As a result, the effects of outpatient continuity of care could not be disentangled from the effect of previous treatment. In this study we examine the relationship of changes in health status to continuity of care in a sample of female veterans newly entering outpatient treatment in the Women's Stress Disorder Treatment Teams (WSDT) program.

In the WSTD program veterans receive outpatient care that focuses on the veteran's traumatic experiences. Most traumatic experiences relate to sexual harassment or assault that occurred when the veterans were in their 20s while serving in the military. Thus, most of the women who received services in WSTD have had PTSD for an extended period, since their average age is 42. Clinicians determine an individual's length of treatment but the anticipated treatment effects are expected to occur after 4 months based on previous research (10).

Continuity of care is difficult to operationalize because it has been used to refer to almost all aspects of service delivery, including the degree to which services are individualized, culturally sensitive, and comprehensive (1). It is conceptualized here, as in previous reports, in a narrower sense as *sustained contact* represented here by two related concepts relevant to the outpatient setting: 1) *regularity of care* as indicated by an evenness in the use of the services over time and the absence of a hiatus in care (5,11,12); and 2) *provider consistency*, i.e., involvement with a limited number of consistently available providers (13,14). Also examined in this study is the related issue of whether

the intensity of care, i.e., the number of outpatient visits over a given period, is associated with better client outcomes.

In this secondary analysis, outcomes data from an evaluation of the VA's WSDT program (15) are combined with measures of continuity of care derived from national VA administrative data bases to examine the association of three continuity of care measures and one intensity measure: 1) with each other, 2) with baseline patient characteristics, and 3) with changes in health status from baseline to the 4 and 8 month follow up assessments.

METHODS

In 1994 the Department of Veterans Affairs increased its network of specialized programs for treating PTSD by establishing four Women's Stress Disorder Treatment Teams, located in Boston, Massachusetts; Brecksville, Ohio; Loma Linda, California; and New Orleans, Louisiana. The teams are specialized psychiatric outpatient clinics that strive to bring sensitivity to evaluation and treatment of the special problems of women veterans, notably sexual harassment and trauma (15).

Sources of Data

As part of an observational evaluation study patients admitted to the 4 programs were assessed with a brief, standardized self-report questionnaire at the time of admission, and again four and eight months later. Specially designated evaluation assistants who were not clinically involved with the programs collected survey data from the veterans. Outcome data were merged with data from national outpatient treatment files in which the delivery of all VA outpatient services is documented. The merged data were then used to create continuity of care measures that are described in greater detail below.

Sample

A total of 224 veterans were enrolled in the evaluation from July 1998 through June 2000: 66 from Boston Massachusetts; 46 from Brecksville Ohio; 75 from Loma Linda California; and 37 from New Orleans Louisiana. Ninety-eight percent of the women invited to participate in the study did so, assuring the representativeness of the data. Admission data were successfully merged with administrative data for all 224 veterans. However, only 149 veterans (66%) were followed up between three and a half months and seven months (the four month

sample) and only 131 veterans (58%) were followed up between seven and thirteen months (the eight month sample).

Measures

Sociodemographic Characteristics

Patient characteristics and clinical status were assessed at intake. Sociodemographic data obtained at baseline included measures of age, education, whether married, whether separated or divorced, ethnic minority group membership, and perceived social support from family and friends (Cronbach $\alpha = .91$) (16).

Treatment Process Measures

Treatment process measures documented the i) perceived strength of patients' therapeutic alliance with their therapist, ii) comfort with coming to the VA for services, as well as iii) patients' satisfaction with and iv) commitment to treatment. The perceived patient-therapist alliance was measured with a five item scale derived from a questionnaire developed by Hovath and Greenberg (17) and modified by Neale and Rosenheck (18) and Chinman, Rosenheck and Lam (19) (Cronbach $\alpha = .81$). Alliance items address reaching a good understanding of desirable changes, working on mutually agreed upon goals, and being of help to the patient. Patients subjective comfort with coming to the VA for care was measured with two items each of which ranged from "1—very uncomfortable" to "4—very comfortable" and addressed comfort using VA medical and psychiatric care, respectively (Cronbach $\alpha = .80$). Patient satisfaction with treatment was measured using a four item scale derived from the work of Attkisson and Zwick (20) (cronbach $\alpha = .86$). Lastly, commitment to treatment was rated by the clinician on a 5 point measure (ranging from "0—not at all" to "4—maximally") that was scored by the clinician. Satisfaction with and commitment to treatment were not measured at baseline.

Clinical Measures

Five clinical domains were assessed at baseline and at both four months and eight months after baseline: (i) PTSD symptoms, (ii) substance abuse, (ii) general psychiatric/physical health (iii) violent behavior, and (iv) employment. These domains and the associated measures relate to outcomes of primary interest in the treatment of PTSD.

Due to their importance for specialized PTSD programs, PTSD symptoms were measured in two ways, using: (i) the Short Form of the Mississippi Scale for Combat-Related PTSD (range = 11–55), an instrument that has been validated in a large sample of outpatients (21) and (ii) a four-item PTSD Scale (range 4–20) developed at the Northeast Program Evaluation Center (the NEPEC PTSD scale)(Cronbach $\alpha = 0.84$).

Two additional measures assessed the degree to which each female veteran was exposed to trauma. These two scales were created with items from the Women's War Stress Inventory (22) and provided an assessment of 1) combat and noncombat, duty-related exposure (coefficient $\alpha = .80$) as well as exposure to 2) sexual harassment, assault and rape (coefficient $\alpha = .81$). Also measured was whether the veteran received VA compensation for PTSD.

Alcohol and drug abuse were measured by using composite indices from the Addiction Severity Index (range 0–1) (23), a widely used and well-validated measure of substance abuse outcomes as well as whether the veteran had a diagnosis of drug or alcohol dependence.

Violent behavior was measured by the following items that were adapted from the National Vietnam Veterans Readjustment Study (range 0–4) (24): (i) destruction of property, (ii) threatening someone with physical violence without a weapon, (iii) threatening someone with a weapon, and (iv) physically fighting with someone (Cronbach $\alpha = 0.70$). Employment was measured using days worked in the past month (range 0–30).

Several additional measures were used to evaluate veterans in the following domains: 1) physical health, 2) psychiatric status, and the 3) type and amount of treatment they had received. Veterans' physical health was evaluated with two measures that addressed whether the veteran had any medical problems and the number of medical diagnoses at admission. Psychiatric status at admission was measured by whether the veteran had made a suicide attempt and with the following three scales: Global Assessment of Functioning (GAF) (25,26), the summary quality of life question from the Lehman (27) quality of life scale, and the perceived impact of mental illness on social functioning scale (Cronbach $\alpha = .78$) (28). This third scale was constructed from three items that addressed patients' perceptions of the extent to which their "emotional problems" caused problems with their "work or other daily activities," Lastly, previous treatment was measured by whether medications had been prescribed prior to admission and whether the veteran had either received any outpatient care in the 4 months prior to admission or had ever been hospitalized for their psychiatric or substance abuse disorders.

Continuity of Care and Intensity Measures

Three continuity of care measures were selected from the literature so as to represent two major aspects of continuity of care: 1) regularity of care and 2) provider consistency. Regularity of care was measured by the number of months in which the veteran had at least 1 visit (range 0–4).

Provider consistency was measured with two composite indices, the Continuity of Care (COC) and the Modified Continuity Index (MCI). Both measures are based on the number of visits and the number of providers. The COC index is based on the following formula developed by Bice and Boxerman (13).

$$\mathrm{COC} = \frac{\sum_{j=1}^{s} n_j^2 - n}{n(n-1)}$$

where n equals the total number of visits and n_j is the total visits to the jth provider. This measure generates a continuity of care score from 0–1, with 1 representing more visits with fewer providers and 0 represents few visits with each of several providers. The second index, the MCI as developed by Magill and Senf (29) is calculated as follows:

$$\mathrm{MMCI} = \frac{1 - (n\,\text{of providers}/[n\,\text{of visits} + 0.1])}{1 - (1/[n\,\text{of visits} + 0.1])}$$

This index takes a different approach to calculating a measure based on a 0–1 scale in which P represents more visits with fewer providers and zero represents 0 visits with numerous providers.

Intensity was measured with an indicator of the number of days there was an outpatient visit in the 4 months following admission.

Analysis

There were three steps to the analysis. First, the degree to which continuity of care measures were correlated with one another was examined. Second, standard regression models were used to examine the strength of the association between baseline client characteristics and the
continuity of care measures.

Lastly, two sets of outcome analyses were conducted that also used standard regression models. The first set of models examined 11 dependent measures representing change in client clinical status. These measures were created by subtracting measures at program entry from measures obtained four months after baseline for each client. Thus,

a negative value for symptom measures indicates improvement in a client's health status (i.e., reduced symptoms). The three continuity of care measures and the intensity measure were the principal independent measures in separate analyses.

The second set of analyses examined the relationship of continuity of care during the first four months of treatment and changes in veterans' health status over 8 months rather than four months.

Treatment process measures reflecting commitment to treatment, satisfaction with treatment, and perceived strength of patients' therapeutic alliance were examined cross sectionally at both 4 and 8 months because no baseline values of these measures were available.

In order to control for possibly confounding factors the models included baseline values of the change scores and measures of sociodemographic, baseline health, and social adjustment that were significantly associated with one of the continuity of care measures. An alpha level of .05 was used throughout. However, since each set of outcome analyses involved four measures of continuity of care and 14 outcome measures for a total of 56 analyses, we also apply a more conservative Bonferonni corrected standard P level of less than .001.

RESULTS

Sample Characteristics

Veterans interviewed within the follow-up window differed from other veterans (i.e., who either did not have a follow-up survey completed or who were surveyed outside of the follow-up window) on only 6 of 35 sociodemographic and clinical characteristics (Table 1). Those interviewed in the follow-up window were on average 3 years older, had a slightly better quality of life, and had a greater number of medical problems at admission. Veterans interviewed within the follow-window and had a significantly higher commitment to treatment and had slightly but significantly higher continuity of care on two measures. Since neither group was consistently better off with respect to personal characteristics or health status, we believe that our sample was not biased by our data selection procedures although it does modestly over represent more active and committed program participants.

Continuity and Intensity of Care

Table 2 presents the intercorrelation of the continuity of care and intensity measures and shows that strong relationships exist among

TABLE 1
Veteran Characteristics for Those with and Without a Follow-Up Interview[a]

	Follow-up interview up to 7 months after baseline (n = 149)		*Follow-up interview does not exist or out of range (n = 75)*			
	Mean/N	*SD*/%	*Mean*/N	*SD*/%	*F*/χ	*P*
Client sociodemographic characteristics						
Age	42.1	10.5	39.1	8.9	4.624	.033
Education	13.86	13.57	1.73	1.56	1.519	.219
African American	44	29.5%	28	37.3%	1.389	.240
Hispanic	15	10.1%	12	16%	1.654	.200
Married	38	25.5%	25	33.3%	1.51	.220
Separated or divorced	59	39.6%	31	41.3%	.062	.804
Perceived friends and family social support	15.1	4.73	13.89	5.09	3.09	.08
Treatment process measures						
Therapeutic alliance	20.8	4.10	21.7	2.08	.149	.700
Comfort with VA	5.96	1.87	5.76	1.6	.632	.428
Satisfaction with treatment	16.71	3.21	16.7	4.02	0	.983
Commitment to treatment	2.61	.972	1.96	1.06	16.8	.000
Clinical measures						
Receives VA compensation for PTSD	17	11.4%	12	16%	.928	.336
PTSD (short Mississippi)	31.7	7.65	33.5	7.87	2.59	.110
PTSD (4-item scale)	12.6	4.58	13.5	4.47	1.91	.168
Sexually related military stress	6.57	3.99	6.53	3.94	.006	.938
Duty related military stress	5.35	6.2	4.4	5.07	1.318	.252
Alcohol problem (ASI)	.0884	.1813	.0703	.1526	.553	.458
Drug problems (ASI)	.0343	.0918	.0285	.0646	.245	.623
Diagnosis of alcohol abuse dependence	20	13.4%	12	16%	.269	.605
Diagnosis of drug abuse dependence	15	10.1%	9	12%	.193	.661
Suicide attempt	76	51%	32	42.7%	1.38	.240
Medical problem at admission	92	67.7%	37	49.3%	3.163	.077
Violence index	.644	.994	.813	1.19	1.26	.263
Employment (days worked)	9.2	11.1	8.15	11.28	.446	.505
Quality of life	3.39	1.28	3.03	1.33	4.04	.046
Has received outpatient care for psychiatric or substance abuse in 4 months prior to discharge	78	52.3%	34	45.3%	.978	.324

(*Continued*)

TABLE 1
(*Continued*)

Medications prescribed prior to admission	99	66.4%	48	64%	.131	.718
Global assessment of functioning	52.7	7.9	52.5	7.73	.078	.781
Perceived impact of mental illness on social functioning	10.2	1.86	10.1	2.28	.069	.793
Ever hospitalized for psychiatric or sub. abuse disorders	.913	1.12	1.067	1.22	.885	.348
Number of medical problems at admission (ASI)	.757	.347	.626	.388	6.6	.011
Continuity of care measures						
Continuity of care index	.292	.189	.267	.2	.811	.369
Modified continuity index	.715	.161	.652	.23	5.58	.019
# of months with at least one outpatient visit	3.61	.808	3.34	1.05	4.51	.035
Number of days with an outpatient visit	18	13.1	15.5	14.5	1.72	.191

[a] $N = 219$ to 224 with the exception of therapeutic alliance for which $n = 107$.

measures of provider consistency which were correlated at .61. Although these two measures are highly associated with one another they are not so highly correlated as to be equivalent. Therefore, we retained each for further analysis.

TABLE 2
InterRelationship of Continuity of Care and Intensity Measures[a]

	Number of days with an outpatient visit	*# of months with at least one outpatient visit*	*continuity of care index*	*Modified continuity index*
Number of days with an outpatient visit	1.000 .	.449 (.001)	−.142 (.088)	.408 (.000)
# of months with at least one outpatient visit		1.000 .	−.059 (.476)	.404 (.001)
Continuity of care index			1.000 .	.606 (.001)
Modified continuity index				1.000 .

[a] $N = 146$.

Client Characteristics with Continuity and Intensity of Care

Relatively few client baseline characteristics were associated with continuity or intensity of care. With respect to the sample of 144 veterans with complete data used for the analysis of changes over four months, only three variables were found to be associated with more than one of the continuity of care or intensity measures. African Americans and veterans with medical problems had lower continuity of care on the two provider consistency measures while veterans with more drug problems scored lower on measures of intensity and regularity of care (Table 3).

Continuity and Intensity of Care and Outcomes

Continuity of care measures were found to be significantly associated with changes in four of the clinical outcomes assessed four months after entering outpatient care. The most robust finding was that the intensity of care measure and two of the continuity of care measures showed a significant association with commitment to treatment (Table 4). The three other associations were not in the expected direction . . . all representing a negative relationship between continuity and intensity of care and clinical outcomes. The number of outpatient visits was negatively associated with the global assessment of functioning, months of contact was found to be associated with a greater decline in days worked, and finally, one of the measures of provider consistency (MMCI) was positively associated with more severe drug abuse problems (ASI).

Examination of 8 month measures, showed eight significant relationships (see Table 5). With one exception they all suggested that clients with greater continuity of care during the first four months of treatment had better outcomes at eight months. Most consistently, all three continuity of care indicators were associated with a reduction of violent behavior. The COC index was also associated with declines in PTSD symptoms on the Mississippi PTSD scale and increases in the global assessment of functioning. The MMCI index was associated with greater commitment to therapy and perceived strength of patients' therapeutic alliance. However, more months with a contact was found to be associated with a greater decline in days worked.

With a conservative Bonferonni corrected p level of $P < .001$, however, none of the relationships in either the 4 month or 8 month outcomes analyses remained statistically significant.

TABLE 3
Relationship of Continuity of Care Indicators and Client Characteristics at Admission[a]

Variables	*Number of days with an least one outpatient visit*		*# of months with at outpatient visit*		*Continuity of care index*		*Modified continuity index*	
	B	*P*	*B*	*P*	*B*	*P*	*B*	*P*
(Constant)	19.7	.20	4.65	**.000**	.374	.12	.877	**.000**
Black	−.968	.69	−.0628	.71	−.077	**.042**	−.0658	**.050**
Married	−4.94	.076	.0924	.64	.09	**.039**	.0364	.35
Alcohol problems (ASI)	20.3	**.005**	.346	.51	−.199	.092	.00325	.98
Drug problems (ASI)	−31.6	**.022**	−2.29	**.019**	.320	.14	−.102	.59
Diagnosis of drug abuse dependence	14.1	**.001**	−.191	.58	.0383	.62	.0356	.60
Medical problem	−4.14	.067	.0892	.57	−.0797	**.025**	−.0759	**.017**
Has received outpatient care for psychiatric or substance abuse in 4 months prior to admission	2.04	.38	−.0528	.75	−.102	**.006**	−0495	.13

[a] $N = 144$.

Note. Only independent variables that were significant are presented here. The following variables were not significant: age, years of education, Hispanic, separated or divorced, friends and family support, comfort with VA, receives VA compensation for PTSD, PTSD (short Mississippi), NEPEC PTSD, sexually related military stress, drug related military stress, diagnosis of alcohol abuse dependence, violence index, employment (days worked), quality of life, medications prescribed prior to admission, GAF, perceived impact of mental illness on social functioning, number of medical diagnoses.

TABLE 4
Relationship of Continuity of Care Indicators with Changes in Client Health Status (from Admission to Four Months)

	Independent Variables								
	Number of days with an outpatient visit		*# of months with at least one outpatient visit*		*Continuity of care index*		*Modified continuity Index*		*Number of cases analyzed*
	B	*P*	*B*	*P*	*B*	*P*	*B*	*P*	
Alliance with doctor	.0453	.13	−.0344	.94	1.18	.56	1.72	.51	66
Comfort with VA	.0138	.29	.232	.22	.431	.63	1.41	.16	144
Satisfaction	.0293	.20	.176	.61	.981	.54	2.84	.10	143
Commitment to treatment	**.01852**	**.011**	**.285**	**.010**	.667	.17	**1.57**	**.005**	133
PTSD (4 item scale)	.0104	.63	.232	.46	−.176	.90	2.18	.18	145
PTSD (short Mississippi)	−.0581	.10	−.405	.44	1.32	.58	−3.26	.23	145
Drug abuse	.000277	.38	.00546	.25	.0116	.6	**.0528**	**.031**	145
Alcohol abuse	−.000479	.41	.00564	.52	.0208	.61	.0240	.60	145
Number of medical diagnosis	.000677	.78	−.0266	.45	−.222	.17	−.228	.21	145
Perceived impact of mental illness on social functioning	−.0065	.92	.0236	.92	−1.14	.26	−.429	.72	144
Quality of life	.0019	.84	.00879	.95	−.00963	.99	.110	.87	144
GAF	**−.171**	**.003**	−1.236	.16	5.21	.17	−3.80	.39	132
Violence	.00866	.092	.0924	.22	−.244	.48	−.371	.34	145
Employment	−.0154	.40	**−1.84**	**.038**	1.38	.75	−3.97	.39	145

TABLE 5
Relationship of Continuity of Care Indicators with Changes in Client Health Status (from Admission to Eight Months)

	Independent Variables								
	Number of days with an outpatient visit		*# of months with at least one outpatient visit*		*Continuity of care index*		*Modified continuity Index*		*Number of cases analyzed*
	B	*P*	*B*	*P*	*B*	*P*	*B*	*P*	
Alliance with doctor	.0121	.61	.310	.41	1.38	.41	**5.03**	**.025**	52
Comfort with VA	−.00166	.94	.193	.30	−.271	.76	.893	.390	127
Satisfaction	−.00858	.73	.0280	.94	2.83	.092	3.86	.055	126
Commitment to treatment	.0106	.24	.159	.28	.382	.48	**1.40**	**.032**	110
PTSD (4 item scale)	−.00845	.72	.414	.21	−2.27	.140	.209	.91	126
PTSD (short Mississippi)	.0152	.73	−.130	.84	**−6.6**	**.023**	−6.59	.069	127
Drug abuse	.000075	.88	.00189	.78	−.0187	.56	−.00722	.85	127
Alcohol abuse	−.00119	.14	−.0025	.83	.0164	.76	−.0296	.65	127
Number of medical diagnosis	.000655	.79	.0171	.62	−.252	.12	−.0456	.814	127
Perceived impact of mental illness on social functioning	.0146	.40	.306	.21	−1.54	.16	−.561	.69	127
Quality of life	−.00113	.91	−.0679	.62	.27	.67	−.029	.97	126
GAF	−.109	.18	−.329	.81	**13.1**	**.006**	.451	.94	109
Violence	−.00403	.51	**−.233**	**.009**	**−1.06**	**.010**	**−1.580**	**.001**	126
Employment	−.0796	.23	**−1.91**	**.041**	7.18	.096	1.07	.84	127

DISCUSSION

In this study standard regression models were used to examine the strength of the association between continuity and intensity of care measures and health outcomes for a sample of female veterans newly entering outpatient treatment for PTSD. Consistent with our expectations, four months following program entry, three measures of intensity and continuity of care were associated with greater commitment to treatment. Although we cannot be confident about the direction of causality it is likely that continuity of care and commitment to treatment reinforce one another. However, contrary to our expectations continuity of care was associated with more severe drug and lower functional outcomes (GAF) scores, probably because patients' declining health increased their need for mental health services. The negative association between the number of months with at least one outpatient visit and fewer days of work is more causally ambiguous since attending treatment may prevent someone from working. Work may also interfere with treatment attendance.

Analysis of outcome measures 8 months after program entry were more positive, suggesting that some benefits of continuity of care may only be apparent after a longer period of time. Continuity of care positively predicted reduced violent behavior and PTSD as well as improved functioning and was also associated with greater commitment to treatment and a stronger patient-therapist alliance. Similar to the results at 4 months, higher levels of continuity of care were associated with less employment, presumably for the same reasons. These findings can be taken as an indication that while continuity of care in the short run is associated with greater engagement in treatment and poorer outcomes because those with more severe illnesses need and use more help, continuity of care may be associated with better outcomes in the long term. However, after Bonferonni correction for multiple comparisons, none of these relationships were significant. This study thus provides weak and somewhat inconsistent evidence of the clinical benefits of continuity of care.

Three strengths of this study deserve mention. First, client outcomes were assessed with a diverse set of established clinical measures, including not only changes in veterans' mental health status but also measures of social adjustment and treatment process measures. Second, it involved patients directly entering outpatient treatment and did not involve patients discharged from inpatient or residential treatment programs, allowing for the effects of outpatient continuity of care to be distinguished from those of inpatient treatment. Lastly, the relationship

between continuity of care and patient outcomes were examined at two time points allowing comparison of the short and long term effects of continuity of care.

There were also several limitations of this study: Most importantly, this was an observational rather than experimental study. Because it is not based on random assignment there could have been important unmeasured differences between veterans with high and low levels of continuity of care that affected the observed outcomes. Although only a few baseline sociodemographic or clinical characteristics were associated with continuity of care and we adjusted for these using multiple regressions, only a limited number of baseline measures were available and additional factors may have biased our results. Nonetheless, we made full use of these measures to control for illness severity, including factors related to health status, sociodemographic characteristics, and baseline values of the outcomes measures.

Another potential limitation is that, as with most administrative data sets, service utilization measures do not reflect care received outside the VA health care system. However, data from other studies (30,31) suggest that it is likely that a relatively low percentage of the clients in the analytical sample actually received outpatient care from non-VA sources. Additionally, there was some measures of non-VA service use available in the interview data, which we found in multiple regressions had a nonsignificant relationship with our continuity and intensity of care measures.

A third potential limitation is that our follow-up rates were relatively low, adding to the possibility of selection bias. Lastly, although a methodological strength of this study is that the sample is a diagnostically homogeneous VA sample consisting exclusively of women, this may limit the generalizability of the findings with regard to other populations, diagnostic groups, and health care systems.

CONCLUSIONS

Administrative data and measures are widely used to assess the quality of mental health, especially measures of continuity of care. However, this study provided only weak and inconsistent evidence of the clinical benefits of continuity of care.

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